

CLAIMS

What is claimed is:

1. A powertrain system, comprising:  
a change-gear transmission having a first input shaft and a second input shaft;  
a first prime mover;  
a twin clutch that includes a first main clutch positioned between the first prime mover and the first input shaft and a second main clutch positioned between the first prime mover and the second input shaft; and  
a second prime mover operably connected to one of the first and second input shafts.
2. The powertrain system of claim 1, wherein the transmission includes a rotational output member.
3. The powertrain system of claim 2, further including a first input shaft clutch positioned between the first input shaft and the rotational output member to selectively fix rotation of the first input shaft with the rotational output member.
4. The powertrain system of claim 1, further including a second input shaft clutch positioned between the first input shaft and the second input shaft to selectively fix rotation of the first and second input shafts.
5. The powertrain system of claim 1, wherein the first prime mover is an internal combustion engine and the second prime mover is one of an electric motor and a hydraulic motor.
6. The powertrain system of claim 1, wherein the first input shaft includes at least one first input gear and the second input shaft includes at least one second input gear.

7. The powertrain system of claim 6, wherein the first and second input gears are secured to the first and second input shafts, respectively, for rotation therewith.

8. The powertrain system of claim 6, wherein the transmission includes a countershaft having at least two countershaft gears, and wherein each of the first and second input gears are meshed with a corresponding countershaft gear.

9. The powertrain system of claim 8, wherein the countershaft gears are rotatably supported on the countershaft.

10. A powertrain system, comprising:

a change-gear transmission having a first input shaft, a second input shaft and a rotational output member, the change-gear transmission also including a first input shaft clutch positioned between the first input shaft and the rotational output member to selectively fix rotation of the first input shaft with the rotational output member and a second input shaft clutch positioned between the first input shaft and the second input shaft to selectively fix rotation of the first and second input shafts;

a first prime mover operably connected to one of the first and second input shafts;

a twin clutch that includes a first main clutch positioned between the first prime mover and the first input shaft and a second main clutch positioned between the first prime mover and the second input shaft; and

a second prime mover operably connected to the other of the first and second input shafts.

11. A transmission and clutch arrangement for a dual prime mover powertrain system, comprising:

a change-gear transmission having a first input shaft and a second input shaft;

a twin clutch that includes a first main clutch configured to selectively transfer power between a first prime mover and the first input shaft and a second main clutch configured to selectively transfer power between the first prime mover and the second input shaft; and

wherein at least one of the first and second input shafts is configured for connection to a second prime mover.

12. The transmission and clutch arrangement of claim 11, wherein the transmission further includes a rotational output member.

13. The transmission and clutch arrangement of claim 12, further including a first input shaft clutch positioned between the first input shaft and the rotational output member to selectively fix rotation of the rotational output member with the first input shaft.

14. The transmission and clutch arrangement of claim 11, further including a second input shaft clutch positioned between the first input shaft and the second input shaft to selectively fix rotation of the first and second input shafts.

15. The transmission and clutch arrangement of claim 11, wherein the first prime mover is an internal combustion engine and the second prime mover is one of an electric motor and a hydraulic motor.

16. The transmission and clutch arrangement of claim 11, wherein the first input shaft includes at least one first input gear and the second input shaft includes at least one second input gear.

17. The transmission and clutch arrangement of claim 16, wherein the first and second input gears are secured to first and second input shafts, respectively, for rotation therewith.

18. The transmission and clutch arrangement of claim 16, wherein the transmission also includes a countershaft having at least two countershaft gears, and wherein each of the first and second input gears are meshed with a corresponding countershaft gear.

19. The transmission and clutch arrangement of claim 18, wherein the countershaft gears are rotatably supported on the countershaft.

20. A transmission and clutch arrangement for a dual prime mover powertrain system, comprising:

a change-gear transmission having a first input shaft, a second input shaft and a rotational output member, the change-gear transmission also including a first input shaft clutch positioned between the first input shaft and the rotational output member to selectively fix rotation of the first input shaft with the rotational output member and a second input shaft clutch positioned between the first input shaft and the second input shaft to selectively fix rotation of the first and second input shafts;

a twin clutch that includes a first main clutch configured to selectively transfer power between a first prime mover and the first input shaft and a second main clutch configured to selectively transfer power between the first prime mover and the second input shaft; and

wherein at least one of the first and second input shafts is configured for connection to a second prime mover.